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COMPLETE SPECIFICATION

Piston Rings

We, THE BRITISH PISTON RING COMPANY LIMITED, of Holbrook Lane, Coventry, in the County of Warwick, a British Company, and THOMAS RALPH TWIGGER, of the Company's address, a British Subject, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to oil scraper rings for the pistons of internal combustion engines, the rings being of the kind the initial shape of which is made such that their effectiveness is delayed until after a period of running of the engine.

It is already known to make such a ring to a non-circular shape, so that initially it makes contact with the cylinder wall around only a portion of its periphery, the ultimate close fitting of the ring against the cylinder wall around the whole of its periphery being effected by wearing of the peripheral surface of the ring. One known method of securing the desired initial shape of the ring is that of forming a series of flats on a circular ring.

The object of the present invention is to enable the desired configuration of the outer periphery of the ring to be imparted in a more convenient and satisfactory manner, and the invention consists of a ring which is made initially to a circular shape, and which has deposited on a part or parts of its outer peripheral surface a material which is removable by wear.

In the accompanying drawings:

Figure 1 is a plan and Figure 2 a side elevation of an oil scraper piston ring made in accordance with the invention.

In carrying the invention into effect, the ring *a* is made initially to a circular form in

the usual manner. A part (or parts) of the peripheral surface of the ring is then masked, and on the exposed part (or parts) is placed by electro deposition, or by spraying or otherwise, a deposit of nickel, tin, cadmium, or other metal of appropriate thickness. In the example shown in the drawings, the deposits are in the form of narrow lands *b*. Alternatively a deposit of non-metallic material such as a metallic oxide mixed with a suitable binder may be applied. In one example, a thickness of .001"/.003" is convenient. During use the deposit gradually wears away, thereby restoring the initial circular shape which then fits the cylinder around the whole of its periphery.

The particular oil scraper ring shown in the drawings has formed in it a plurality of slots *c* and a circumferential groove *d* for collecting oil from the inner surface of a cylinder wall.

The invention is not limited to the example described, as the position of the deposit or deposits and also the width thereof may be varied to suit different requirements. Thus, for example, a single deposit may be applied subtending about one half of the circumference of the ring.

What we claim is:—

1. An oil scraper piston ring of the kind specified which is made initially of circular shape and has on a part or parts of its outer peripheral surface a deposit or deposits of a material which is removable by wear.

2. An oil scraper piston ring of the kind specified which is made initially to a circular shape and has on its outer peripheral surface a wear-removable land or lands formed substantially as described.

MARKS & CLERK.

PROVISIONAL SPECIFICATION

Piston Rings

We, THE BRITISH PISTON RING COMPANY LIMITED, of Holbrook Lane, Coventry, in the [Price 2/8]

County of Warwick, a British Company, and THOMAS RALPH TWIGGER, of the Company's

address, a British Subject, do hereby declare this invention to be described in the following statement:—

5 This invention relates to piston rings (including oil scraper rings), and more particularly to rings for the pistons of internal combustion engines.

10 It is already known to make such a ring to a non-circular shape, so that initially it makes contact with the cylinder wall around only a portion of its periphery, the ultimate close fitting of the ring against the cylinder wall around the whole of its periphery being effected by wearing of the peripheral surface 15 of the ring. One known method of securing the desired initial shape of the ring is that of forming a series of flats on a circular ring.

20 The object of the present invention is to enable the desired initial non-circular form of the ring to be imparted in a more convenient and satisfactory manner, and the invention consists of a ring which is made initially to a circular form, and which has deposited on a part or parts of its peripheral surface a layer

of metal or other material which is removable 25 by wear.

In carrying the invention into effect, the ring is made initially to a circular form in the usual manner. A part (or parts) of the peripheral surface of the ring is then masked, and 30 on the exposed part (or parts) is deposited by electro deposition, or by spraying or otherwise, a layer of chromium, nickel, tin, cadmium, or other metal of appropriate thickness. Alternatively a deposit of non-metallic 35 material such as a metallic oxide mixed with a suitable binder may be applied. In one example, a thickness of .001"/.003" is convenient, and the deposit is applied to about one half of the circumference of the ring. 40

When the piston is fitted with a plurality of rings serving as sealing or as oil scraping rings, any one or more of these may be treated in the manner above described. During use the deposit gradually wears away, leaving 45 eventually a ring of circular form which then fits the cylinder around the whole of its periphery.

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